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EDUCATION

Ph.D. 1994	University of Washington	(Atmospheric Sciences)
M.S. 1984	Colorado State University	(Atmospheric Science)
B.S. 1982	University of California at Davis	(Atmospheric Science)

EMPLOYMENT EXPERIENCE

4/99- Meteorologist, Chemistry and Climate Processes Group (Program Leader)
Meteorological Chemistry Group (through 12/07)
NOAA Aeronomy Laboratory, Boulder, Colorado (through 9/05)
NOAA ESRL, Chemical Sciences Division, Boulder, Colorado (10/05-present)
Senior Scientist for Climate and Climate Change (4/16-present)

6/94-4/99 Research Associate, CIRES, University of Colorado/NOAA Aeronomy Laboratory, Boulder, Colorado.

9/89-6/94 Graduate Research Assistant, Department of Atmospheric Sciences, University of Washington, Seattle, Washington (advisor: J. R. Holton).

12/84-6/89 Professional Research Assistant, Laboratory for Atmospheric and Space Physics, University of Colorado, Boulder, Colorado.

8/82-11/84 Graduate Research and Teaching Assistant, Department of Atmospheric Science, Colorado State University, Fort Collins, Colorado (advisor D. E. Stevens).

6/81-8/82 Meteorologist Intern, NWS, Weather Service Forecast Office, Redwood City, California.

6/80-3/81 Student Trainee, NWS, CA/NV River Forecast Center, Sacramento, California.

6/79-5/80 Student Intern, California Air Resources Board, Emissions Inventory section, Sacramento, California.

AWARDS

- NASA Group Achievement Award, ATom Science Team, 2019
- NASA Group Achievement Award, POSIDON Science Team, 2017
- Yoram J. Kaufman Unselfish Cooperation in Research Award (AGU), 2016
- NASA Group Achievement Award, ATTREX Science Team, 2016
- NASA Group Achievement Award, SEAC^{4}RS Science Team, 2014
- Fellow of the American Meteorological Society, elected Feb 2014
- NOAA Bronze Award, "for the successful demonstration of the Global Hawk Unmanned Aircraft Systems for NOAA's Climate Goal" awarded to David Fahey, Steven Ciciora, Richard McLaughlin, RuShan Gao, Karen Rosenlof, Bradley Hall, and James Elkins, 2013
- NASA Group Achievement Award, MACPEX Science Team, 2012
- NASA Group Achievement Award, GloPac Science Team, 2011
- NASA Group Achievement Award, ARCTAS Science Team, 2009
- NASA Group Achievement Award, TC-4 Science Team, 2008
- NOAA Bronze Award, "for demonstrating the usefulness of unmanned aircraft systems in accomplishing NOAA's mission, including operation and research goals" awarded to

James Churnside, James Elkins, David Fahey, Albin Gasiewski, Samuel Oltmans, Karen Rosenlof, and Sara Summers, 2007
- NASA Group Achievement Award, UARS Team, 2006
- NASA Group Achievement Award, CRYSTAL-FACE Science Team, 2003
- NASA Group Achievement Award, CAMEX 4 Science Team, 2002
- Clarence Leroy Meisinger Award, American Meteorological Society, 2000, "for outstanding observational and theoretical analysis of the stratospheric circulation and trace constituent transport."
- NOAA/ERL Outstanding Paper Award, 1998, 2001, 2011

  2011: Murphy, D. M., S. Solomon, R. W. Portmann, K. H. Rosenlof, P. M. Forster, and T. Wong (2009), An observationally based energy balance for the Earth since 1950, *J. Geophys. Res.*, **114**, D17107, doi:10.1029/2009JD012105.

  2001: Oltmans, S. J., H. Vömel, D. J. Hofmann, K. H. Rosenlof, D. Kley, 2000: The increase in stratospheric water vapor from balloonborne, frostpoint hygrometer measurements at Washington, D.C., and Boulder, Colorado *Geophys. Res. Lett.*, **2**, 3453-3457.

  1998: Rosenlof, K. H., A. F. Tuck, K. K. Kelly, J. M. Russell III, M. P. McCormick, 1997: Hemispheric asymmetries in water vapor and inferences about transport in the lower stratosphere, *J. Geophys. Res.*, **102**, 13213-13234. (ASHOE/MAESA special section)
- NASA Group Achievement Award, POLARIS Project Team, 1997
- Travel award to attend SPARC conference in Melbourne Australia, Dec. 1996
- Travel award to attend NATO ASI, "The Stratosphere and its Role in the Climate System" in Val Morin, Quebec, Canada, Sept. 1-15, 1995
- State of Colorado Graduate Fellowship, 1983
- Henry Jastro Fellowship (U.C. Davis), 1982
- Phi Kappa Phi Honor Society, 1981

LEADERSHIP POSITIONS
- SPARC Water Vapour Assessment-II (WAVAS II) co-leader; 2008-present
- POSIDON Experiment, WB-57F aircraft experiment, Flight planning lead scientist, 2016
- VIRGAS Experiment, WB-57F aircraft experiment, Flight planning lead scientist, 2015
- SEAC^{4}RS Experiment, multi-aircraft, Leadership team member, 2013
- NOAA-Water Experiment, WB-57F aircraft experiment, Lead scientist, 2005
- SPARC water vapor assessment II (WAVAS II) co-leader; 2008-present
- Chair of the AMS Middle Atmosphere STAC Committee (2004-2007)
- SPARC Water Vapour Assessment Chapter 2 coordinating lead author, 1998-2000

SCIENCE TEAM PARTICIPATION
- Multi-aircraft experiments: TC^4 (2007), SEAC^{4}RS (2013), ACCLIP (2020)
- DC-8 aircraft experiment: ATom (2017 & 2018)
- ER-2 aircraft experiments: ASHOE/MAESA (1994), POLARIS (1997), CAMEX-4 (2001)
- WB-57F aircraft experiments: WAM (1998), ACCENT I&II (1999, 2000), CRYSTAL-FACE (2002), Pre-AVE (2004), AVE (2004), AVE (2005), TCSP (2005, theory), NOAA-Water Experiment, lead scientist (2005), CR-AVE (2006), MACPEX (2011), VIRGAS (2015), POSIDON (2016)
- NOAA UAS Flight Demonstration Project 2005
- NOAA P-3 aircraft experiment: flight planning lead ARCPAC (2008), (in conjunction with NASA ARCTAS)
- NCAR G-5 aircraft experiments: START-08 (2008), HIPPO (2009-2011)

- Satellite experiments: HALOE (1994-2002), SAGE-II (1994-1997), Aura (2008- 2011)
- Global Hawk: GloPac (2010), ATTREX (2011 - 2014), ENRR (2016)
- NOAA UAS instrument intercomparison with PMEL Manta aircraft (2014)
- Small UAS: NightFOX (flights in 2019, testing started in 2018)
- Balloon, AEROMARINE (Reunion Island, 2016)

ACTIVITIES & PROFESSIONAL

- Member Community Climate Intervention Strategies (CCIS) webinars and workshop organizing committee, 2020 (primary organizer for Observations Webinar)
- Steering Committee member, Geoengineering Modeling Research Consortium, 2019-present
- International Space Science Institute (ISSI) Team member, Tropical Width Impacts On The Stratosphere (TWIST), 2019-2020
- Member of the Geoengineering Modeling Research Consortium steering committee
- Member of the MUSICA Physics, Transport, sub-scale Processes advisory panel (NCAR)
- Selection Committee Member, Yorum J. Kaufman award (AGU) 2019-2020
- Member of the Stratosphere-Troposphere Processes and their Role in Climate (SPARC) Scientific Steering Group (SPARC is a core project of the World Climate Research Program (WCRP), term began in January 2019.
- Organizing Committee, Solomon Symposium (at 2020 AMS Annual Meeting)
- Review panel member for the Deutsche Forschungsgemeinschaft (DFG) Priority Programme Atmospheric and Earth System Research with the 'High Altitude and Long-Range Research Aircraft' (HALO) – SPP 1294/5, February 2019, Berlin
- Co-Convener (with P. Newman) for ozone session at 2019 AMS Annual Meeting (*note, the meeting occurred during the 2018/19 government shutdown, so I was unable to attend, but the session went on as planned prior to Dec 22, with a number of people substituting for NOAA and NASA employees*)
- Primary Convener for stratospheric ozone session at 2018 AGU Fall Meeting (w/Daniel, Banerjee & Strahan)
- Co-Convener (with G. Stiller) for special session on Water Vapor observations at 2018 EGU
- Editor (with Russell, Buehler & Stiller) for ACP/AMT/ESSD inter-journal Special Issue on Water vapour in the upper troposphere and middle atmosphere: a WCRP/SPARC satellite data quality assessment including biases, variability, and drifts
- Education outreach at Liceo María Auxiliadora (girl's high school in Punta Arenas Chile) described ATom science to 2 high school classes, May 8, 2018
- External review committee for the Helmholtz Association, Karlsruhe Institute of Technology Earth and Environment program (October 2017)
- External review committee for the Helmholtz Association, Forschungszentrum Juelich (FZJ), Earth and Environment program (October 2017)
- Selection Committee, NOAA PECASE awards, 2017
- Co-Convener (with T. Thornberry and R. Ueyama) for session on UTLS observations and modeling at 2017 AGU
- Member of the organizing committee, OAR Forums: Atmospheric Chemistry/Air Composition and Ecosystem Modeling, held June 15-June 16, 2017 in Silver Spring, Md.
- Reviewer for the 2016 OAR Scientific Paper Awards
- US CLIVAR Working Group on the Changing Width of the Tropical Belt, 2016-2017
- International Space Science Institute (ISSI) Team member, Tropical Width Diagnostics Comparison Project, 2017-2018
- Chapter author, 2018 UNEP/WMO Scientific Assessment of Ozone Depletion

- Co-convener (with I. Petropavlovskikh, T. Leblanc, D. Hurst) for session on uncertainties in long-term records of ECVs, Fall AGU, 2015
- NASA Langley Science Directorate External Review Panel Member 2015
- NOAA GRUAN Coordination Committee 2015 & 2016
- Contributing author of the CrIS Atmospheric Chemistry Data User's Workshop Report 2014
- SI^{2}N Activity member (assessment of stratospheric ozone trends) 2013-2014
- Rapporteur for "Stratospheric composition", and a coauthor of that section of the report resulting from the NASA "Outstanding Questions in Atmospheric Composition, Chemistry, Dynamics and Radiation for the Coming Decade" workshop held at NASA Ames Research Center, Mountain View, CA, May 6-9 2014.
- Member ad hoc SPARC committee on the need to continue vertically resolved stratospheric measurements for ozone and climate studies (2014)
- Lead author of the GRUAN Report #3, Outcomes of the GRUAN Network Expansion Workshop, finalized in August 2014
- Advisory Board Member, ESA SPARC Initiative (SPIN)
- Instructor; U.S. - Japan Bilateral Workshop on the Tropical Tropopause Layer: State of the Current Science and Future Observational Needs, Oct 2012
- Reviews for 2011 Office of Atmospheric and Oceanic Research (OAR) Outstanding Scientific Paper Awards
- Expert reviewer for Chapter 2 FOD and SOD, IPCC AR5
- External review panel for the SHARP Program (German stratospheric research program, in Berlin, March 2012)
- Reviewer for SPARC Data Initiative, Dec 2011
- Session co-organizer for parallel session for the WCRP 2011 meeting
- Session co-organizer for water vapor poster cluster at the WCRP 2011 meeting
- Co-Convener (with S. Davis) for special session on tropical extent at Fall AGU (2010)
- Lead Author, 2010 Ozone Assessment (Chapter 4)
- Instructor, Cargese International School, Water Vapour in the Climate System, Sept. 2009
- NOAA ESRL CSD seminar coordinator, September 2006-August 2008
- ACCRI SSWP Workshop (and proposal review committee), 2007/2008
- ICAO CAEP Impacts Workshop, Montreal, 29-31 October 2007
- Chapman Water Vapor Conference organizing committee (meeting in fall 2008)
- Chair of the AMS Middle Atmosphere STAC Committee (member 01-07, chair 04-07)
- Contributing author: 2006 Ozone Assessment
- Contributing author: 2007 IPCC AR4
- 14th AMS Middle Atmosphere Conference program committee
- Aura water vapor validation subcommittee, chair, 2005 & 2006
- Participant at the Workshop on the Impacts of Aviation on Climate Change, June 7-9, 2006, Boston, MA (listed as a contributing author on the final report)
- 13th AMS Middle Atmosphere Conference program committee, Chair (2005)
- Nominating committee appointed by the AGU Atmospheric Sciences President, 2004-2006
- Nominating committee for the AMS Bernhard Haurwitz Memorial Lecturer, 2003 - 2006
- External Review Committee for the NRL Battlespace Environments (Atmospheric Physics) Research Program (April 2003)
- Rapporteur at the Joint SPARC-IGAC Workshop on Climate-Chemistry Interactions (2003)
- 12th AMS Middle Atmosphere Conference program committee (2002)
- Co-Convener (with R. Friedl and M. Ross) for ACCENT special session at Fall AGU (2001)
- NOAA Outstanding Paper Awards review committee (2000)

- AMS Committee on Middle Atmosphere (2001-2007, chair 2004-2007)
- AGU Atmospheric Dynamics sub-committee member (1999-2005)
- SPARC Water Vapor Assessment, Chapter 2 coordinating lead author (1998-2000)
- NRC Panel on the Atmospheric Effects of Aviation (PAEAN) (1998-1999)
- Second Chapman Conference on Water Vapor in the Climate System program committee (1999)
- Co-organizer for the UW Dept. of Atm. Sciences Research Orientation Seminars, 1992/93
- Organizer for the UW Dept. of Atmospheric Sciences Teaching Award, 1992
- Secretary/Treasurer, CSU American Meteorological Society chapter, 1983/84
- President, Atmospheric Sciences Student Group, UC Davis, 1981/82

PROFESSIONAL SOCIETIES:

American Meteorological Society, member since 1980.
American Geophysical Union, member since 1988.

STUDENT INVOLVEMENT

Member of Jeff Hicke's (CU, PAOS), Ryan Neely's (CU, ATOC), Adriana Raudzens-Bailey's (CU, ATOC) and Wei Yuan's (SOMAS, Stony Brook) PhD committees
Advised Matthew Phillips, undergraduate PHASE student for 2 years.
Advised David Hergeshiemer, STEM Teacher and Researcher (STAR) program (Summer 2015)
PROGRESS mentor (advising undergraduate female STEM students) 2016-2018
Co-advised SOARS student, Ekaterina Lezine 2018 & 2019
External examiner, PhD thesis committee for Dan Weaver, University of Toronto, 2018